Student Name: **Student id:** **Sect #:** **Ser#:**

University of Bahrain College of Information Technology
Department of Computer Science

ITCS242: ASSEMBLY LANGUAGE PROGRAMMING **Quiz #4**: Bit Instructions

****

Q1) Write a procedure named **quiz4** that accepts a memory word *f* as a parameter and

if (f is even)
inverse even-numbered bits in f ; *(multiply/divide instructions NOT allowed).*
else
f = f / 16 ;

```
quiz4   proc  uses ebx, f : ptr word
        mov   ebx, f
        bt    word ptr [ebx], 0
        jc    f3
        xor   word ptr [ebx], 55555555h
        jmp   done
f3:     shr   word ptr [ebx], 4
done:   ret
quiz4   endp
```

Q2) *The prototype of the procedure quiz4 is:*

```
quiz4  proto   f : ptr word
```

Q3) What will be in the indicated registers after executing each of the following codes?

a)
```
MOV     AX, 9A6EH
AND     AX, 7C95H
NOT     AX
```

AX = **E7 FB** H

b)
```
MOV   AX, 9A6EH
XOR   AX, 7C95H
ROR   AX, 4
```

AX = **BE 6F** H

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****

Q1) *Write a procedure named formA that accepts a memory word T as a parameter and*

if (T is negative)
inverse odd-numbered bits in T; *(multiply/divide instructions NOT allowed).*
else
divide eax:ebx:edx by 32 ;

```
formA   proc  uses ebx, T: ptr word
        mov   ebx, T
        bt    word ptr [ebx], 15
        jc    f4
        mov   ecx, 5
L2:     shr   eax, 1
        rcr   ebx, 1
        rcr   edx, 1
        loop  L2
        jmp   done
f4:     xor   word ptr [ebx], 0AAAAh
done:   ret
formA   endp
```

Q2) *The prototype of the procedure formA is:*

```
formA   proto   T : ptr word
```

Q3) What will be in the indicated registers after executing each of the following codes?

a)
```
MOV   AX, 5B9FH
OR    AX, 2A3CH
ROL   AX, 4
```

AX = **BB F7** H

b)
```
MOV   AX, 5B9FH
XOR   AX, 2A3CH
ROR   AX, 4
```

AX = **37 1A** H